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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,904	03/07/2005	Yoshitaka Koshiro	262326US0X PCT	7852

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EXAMINER	
GILLESPIE, BENJAMIN	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
05/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/526,904	KOSHIRO ET AL.	
	Examiner	Art Unit	
	BENJAMIN J. GILLESPIE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-22 and 27-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-22 and 27-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102/103

The following is a quotation of 35 U.S.C. 102(b) and 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 12-16, 19-21, and 27-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hirai et al ('185). Hirai et al teach thermoplastic polyurethane elastomers that are the reaction product of (A) high molecular weight diol, (B) diisocyanate, and (C) chain extender (Col 3 lines 18-30). In particular, patentees explain (A) is a mixture of caprolactone-modified polysiloxane diol, and polytetramethylene ether glycol (PTMEG), (B) is diphenylmethane diisocyanate (MDI), (C) is bis hydroxyethyl ether benzene, and (A), (B), and (C) are all present in amounts that coincide with applicants' claimed range (Col 4 lines 39-42, 49, 58-60, 63-67; col 5 lines 1-4).

3. Regarding the mechanical values of claim 12, based on identical reactants which are utilized in amounts that correspond to applicants' claimed ranges, the examiner takes the position that the elastomer of Hirai et al would inherently exhibit the same properties as claimed by applicants. Furthermore, when the prior art discloses a product which reasonably appears to be either identical or only slightly different than a product claimed in a product-by-process claim, it is appropriate for the examiner to make a rejection under both 35 U.S.C. 102 and 35 U.S.C. 103, such that the burden is placed upon applicants to provide clear and convincing factual evidence that the respective products to in fact differ in kind. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

4. Claims 12-16, 19-21, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meijs et al ('254) in view of Ward et al ('413). Meijs et al teach thermoplastic polyurethane elastomers that are the reaction product of (A) high molecular weight diol, (B) diisocyanate, and (C) low molecular weight diol chain extender in amounts that satisfy the claimed ranges (Col 1 lines 12-20; col 7 lines 45-53; col 8 lines 27-36; examples). In particular, (A) is a mixture of PTMEG, and polysiloxane polyol, wherein each polyol has a molecular weight ranging from 200 to 5,000, (B) is diphenylmethane diisocyanate (MDI), and (C) is 1,4-bis (2-hydroxyethyoxy) benzene (Col 6 lines 25-28, 59-61; col 7 lines 62, and 66; col 8 lines 37-39). Meijs et al go on to explain that the specific selection polyethers and polysiloxanes is critical due to miscibility parameters of each diol, i.e. the ability for each diol to successfully mix with one another; however patentees fail to disclose caprolactone-modified polysiloxane diol.

5. Ward et al teach the production of polyurethane elastomers, comprising the reaction product of polyether and polysiloxane diol, diisocyanate, and chain extender (Abstract; col 5

lines 52-57). In particular, Ward et al explain the polysiloxane is based on ethylene oxide-terminated polysiloxane diol that is later modified with ξ-caprolactone, because it results in polysiloxane that exhibits improved miscibility with other polymers (Col 1 lines 35-67; col 4 lines 16-21, 30-37). Hence, it would have been obvious to include caprolactone modified polysiloxane diol in Meijs et al since it increases stability and homogeneity of the resulting diol mixture.

6. Furthermore, while Meijs et al teach that PTMEG is present in the polyurethane, it is not a preferred diol because of its relative immiscibility with the polysiloxane, however in view of the modified polysiloxane disclosed by Ward et al, one of ordinary skill would be motivated to include PTMEG since exhibits improved miscibility with the modified polysiloxane. Finally, regarding the claimed mechanical properties, although not explicitly disclosed by the prior art, one of ordinary skill would reasonably expect the composition rendered obvious by Meijs et al and Ward et al to exhibit the same properties based on analogous reactants and amounts.

7. Claims 12-21, and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al ('492) in view of Ward et al ('413). Wu et al teach a golf ball comprising a core and cover, wherein the cover is a polyurethane that exhibits a coefficient of restitution between 50 and 90% and is the reaction product of high and low molecular weight polyol as well as aromatic diisocyanate (Abstract; Table 1). In particular, patentees explain that the high molecular weight polyol consists of polysiloxane diol and PTMEG, wherein the polyols have an average molecular weight that coincides with applicants' claimed range (Col 2 lines 56-65; col 9 lines 25-29). The low molecular weight polyol consists of either propanediol or 1,3-bis(2-hydroxyethyoxy)

benzene, and the diisocyanate is 4,4'-diphenylmethane diisocyanate (MDI) (Col 7 lines 28-32, 43-44; col 11 lines 48-50, 55).

8. Regarding the claimed impact resilience at 0°C, since the claimed polyurethane shares identical reactants, as well as other mechanical values, i.e. the coefficient of restitution at room temperature, as Wu et al, the position is taken that it would inherently exhibit the same impact resilience at 0°C. Finally, concerning the claimed amounts of polyisocyanate, and high and low molecular weight polyol, based on the equivalent ranges for each reactant and the breadth of the molecular weight ranges disclosed, the claimed ranges are satisfied by Wu et al, however patentees fail to teach caprolactone modified polysiloxane diol (Col 13 lines 35-55).

9. As previously discussed, Ward et al teach polyurethane elastomers comprising the reaction product of polyether and polysiloxane diol, diisocyanate, chain extender (Abstract; col 5 lines 52-57). In particular, Ward et al explain the polysiloxane is based on ethylene oxide-terminated polysiloxane diol that is later modified with ξ-caprolactone, because it results in polysiloxane that exhibits improved miscibility with other polymers (Col 1 lines 35-67; col 4 lines 16-21, 30-37). Hence, it would have been obvious to include caprolactone modified polysiloxane diol in Wu et al since the modified polysiloxane exhibits increases stability and homogeneity of the resulting diol mixture.

10. Claims 17, 18, 22, 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al ('185) in view of Harris et al ('987). Aforementioned, Hirai et al teach a polyurethane elastomer comprising the reaction product of polysiloxane diol, PTMEG, diisocyanate, and butanediol chain-extender; patentees fail however to teach propanediol chain-extender or a golf ball cover comprising said elastomer.

11. Harris et al also teach polyurethane elastomers comprising the reaction product of high molecular weight diol, diisocyanate, and chain-extender, wherein said elastomer is useful in golf-ball covers (Abstract; col 4 lines 43-49). In particular, patentees teach the elastomeric polyurethane is the reaction product of polysiloxane diol, PTMEG, diisocyanate, and low molecular weight diol, and such examples are disclosed by Szycher et al ('627), thereby incorporated by reference (Col 6 lines 35-48). What's more, in addition to butanediol, Szycher et al teach that 1,3-propanediol is a suitable low molecular weight chain extender for the polyurethane elastomer (Szycher et al; col 4, lines 59, 62).

12. Therefore, it would have been obvious to first utilize the polyurethane elastomer of Hirai et al as a golf ball cover since Harris et al disclose analogous polyurethane useful in such applications, and the prima facie case of obviousness rises from the expectation that compounds similar in structure will have similar properties. *In re Gyurik*, 596, F. 2d 1012, 201 USPQ 552 (CCPA 1979). Secondly, it would have also been obvious to include 1,3-propanediol chain extender in the composition of Hirai et al, since Harris et al disclose it as a suitable equivalent to butanediol, and the mere substitution of an equivalent is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable, i.e. it would have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

13. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al ('492) in view of Ward et al ('413) and in further view of Harris et al ('987). As mentioned above, Wu et al in view of Ward et al render obvious a golf-ball cover comprising polyurethane that is the reaction product of diisocyanate, polysiloxane diol, PTMEG, and ethylene glycol chain-extender,

however the prior art fails to teach chain-extender consisting of 1,3-propanediol (Wu et al; col 11 line 54).

14. As previously discussed, Harris et al disclose golf-ball covers comprising polyurethane that is the reaction product of polysiloxane diol, PTMEG, diisocyanate, and chain-extender, wherein chain extender consists of either ethylene glycol, or 1,3-propanediol, and hence it would have been obvious to include 1,3-propanediol chain extender in Wu et al, it disclosed as a suitable equivalent to ethylene glycol in analogous compositions, and the mere substitution of an equivalent is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable, i.e. it would have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

15. Claims 17, 18, 22, 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meijs et al ('254) in view of Ward et al ('413) and in further view of Harris et al ('987). As previously discussed, Meijs et al in view of Ward et al render obvious a polyurethane elastomer comprising the reaction product of diisocyanate, butanediol chain extender, and a mixture of polysiloxane diol and PTMEG; patentees fail however, to teach 1,3-propanediol chain-extender or golf ball covers comprising said elastomer. Aforementioned, Harris et al also teach polyurethane elastomers comprising diisocyanate, chain-extender, and a mixture of PTMEG and polysiloxane diol, wherein said elastomer is useful in golf-ball covers, wherein said chain-extender consists of butanediol and 1,3-propanediol (Abstract; col 4 lines 43-49; col 6 lines 35-48; Szycher et al; col 4 lines 59, 62).

16. Therefore, it would have been obvious to first utilize the polyurethane elastomer of Meijs et al in golf ball covers since Harris et al such applications are suitable for analogous

compositions, and the prima facie case of obviousness rises from the expectation that compounds similar in structure will have similar properties. *In re Gyurik*, 596, F. 2d 1012, 201 USPQ 552 (CCPA 1979). Secondly, it would have also been obvious to include 1,3-propanediol chain extender in the composition of Hirai et al, since Harris et al disclose it as a suitable equivalent to butanediol, and the mere substitution of an equivalent is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable, i.e. it would have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

Response to Arguments

17. Applicant's arguments with respect to claims 12-22, and 27-37 have been considered but are moot in view of the new ground(s) of rejection. The examiner has also noted applicants' remarks concerning the foreign priority date of the current application and how they relate to prior art Wu et al ('492). However applicants have not perfected priority as no certified translation has been provided for Japanese applications: 2003-017254 or 2003-17255; Wu et al is still valid prior art until certified translations have been provided for said applications MPEP 2304.01(c).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN J. GILLESPIE whose telephone number is (571)272-2472. The examiner can normally be reached on 8am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rabon Sergent/
Primary Examiner, Art Unit 1796

B. Gillespie